

MAIL TO:

STATE OF UTAH
DIVISION OF PURCHASING
3150 STATE OFFICE BUILDING, CAPITOL HILL
P.O. BOX 141061
SALT LAKE CITY, UTAH 84114-1061
TELEPHONE (801) 538-3026
<http://www.purchasing.state.ut.us>

Invitation to BidSolicitation Number: **JG3123**Due Date: **03/11/03 @2:00 PM**

Date Sent: February 24, 2003

Goods and services to be
purchased:

REPLACEMENT OF WATER LINE AT KODACHROME BASIN STATE PARK**Please complete**

Company Name		Federal Tax Identification Number	
Ordering Address	City	State	Zip Code
Remittance Address (if different from ordering address)	City	State	Zip Code
Type <input type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Proprietorship <input type="checkbox"/> Government	Company Contact Person		
Telephone Number (include area code)	Fax Number (include area code)		
Company's Internet Web Address	Email Address		
Discount Terms (for bid purposes, bid discounts less than 30 days will not be considered)	Days Required for Delivery After Receipt of Order (see attached for any required minimums)		
<p>The following documents are included in this solicitation: Solicitation forms, instructions and general provisions, and specifications. <u>Please review all documents carefully before completing.</u></p> <p>The undersigned certifies that the goods or services offered are produced, mined, grown, manufactured, or performed in Utah. Yes ____ No _____. If no, enter where produced, etc. _____</p>			
Offeror's Authorized Representative's Signature		Date	
Type or Print Name		Position or Title	

**STATE OF UTAH
DIVISION OF PURCHASING**

Invitation to Bid

Solicitation Number: JG3123

Due Date: 03/11/03

Vendor Name:

Description	Unit Price	Extension
<p>SUPPLY ALL NECESSARY MATERIAL AND LABOR FOR THE REPLACEMENT OF APPROXIMATELY 25,000 FEET OF 2" WATER LINE FROM THE SPRING TO THE NEW WATER STORAGE TANK WITH 4" DIAMETER PVC PIPE AT KODACHROME STATE PARK PER PLANS AND SPECIFICATION.</p> <p>A PRE-BID SITE INSPECTION WILL BE HELD AT KODACHROME STATE PARK HEADQUARTERS AT 10:00 AM ON MARCH 5, 2003.</p> <p>KODACHROME STATE PARK IS LOCATED APPROXIMATELY 5 MILES SOUTH OF CANNONVILLE, UTAH.</p> <p>IT IS HIGHLY RECOMMENDED THAT ALL CONTRACTORS, OR THEIR REPRESENTATIVE, PLANNING TO BID THIS PROJECT ATTEND THIS PRE-BID SITE INSPECTION.</p> <p>FOR A COPY OF THE PLANS & DRAWINGS CONTACT BRENT LLOYD @ (801) 538-7349 OR EMAIL: brentlloyd@utah.gov. COPIES WILL ALSO BE AVAILABLE AT THE PRE-BID INSPECTION. OR PLEASE SEE www.purchasing.utah.gov.currentbids.asp FOR A COPY OF FULL BID SPECIFICATIONS.</p> <p>A 5% BID BOND WILL BE REQUIRED AT THE TIME OF BID SUBMITTAL. AND A 100% PERFORMANCE/PAYMENT BOND WILL BE REQUIRED OF THE SUCCESSFUL BIDDER. PLEASE COMPLETE A BOND STATEMENT AND SUBMIT ALONG WITH YOUR BID.</p> <p>YOU MUST BE A LICENSED CONTRACTOR IN THE STATE OF UTAH TO BID THIS PROJECT. PLEASE COMPLETE A CONSTRUCTIONS TRADE LICENSING REQUIREMENTS FORM AND SUBMIT ALONG WITH YOUR BID</p> <p>THIS IS AN INVITATION TO BID, THEREFORE, YOU MAY EITHER HAND DELIVER OR MAIL IN YOUR BID RESPONSE. BIDS RESPONSES THAT ARE FAXED IN WILL NOT BE CONSIDERED.</p>	\$	\$
<p>FOR QUESTIONS PLEASE CONTACT: BRENT LLOYD, @ PH: (801) 538-7349.</p> <p>FOR BID PROCESSING QUESTIONS PLEASE CONTACT: JARED GARDNER @ (801) 538-3342.</p> <p>*****</p> <p>REF RX# 560/341-29</p>		

**STATE OF UTAH
DIVISION OF PURCHASING**

Invitation to Bid

Solicitation Number: JG3123

Due Date: 03/11/03

Vendor Name:

**Ship To: STATE OF UTAH / KODACHROME BASIN STATE PARK
APPROXIMATELY 5 MILES SOUTH OF CANNONVILLE, UT 84718-0238**

FREIGHT CHARGES (if applicable)

SHIPPING POINT AND ZIP CODE	
SHIPPING WEIGHT	
MODE OF TRANSPORTATION (Please check one) Q Small package/Ground Q LTL(Less than truck load) Q Truckload Q Air Q Other (Please specify) NMFC Class # _____ NMFC Item # _____	
TOTAL PRICE LESS FREIGHT (FOB Origin)	\$
TOTAL PRICE INCLUDING FREIGHT (FOB Destination)	\$

INVITATION TO BID - INSTRUCTION AND GENERAL PROVISIONS

1. **BID PREPARATION:** (a) All prices and notations must be in ink or typewritten. (b) Price each item separately. Unit price shall be shown and a total price shall be entered for each item bid. (c) Unit price will govern, if there is an error in the extension. (d) Delivery time is critical and must be adhered to as bid. (e) Wherever in this document an item is defined by using a trade name of a manufacturer and/or model number, it is intended that the words, "or approved equal" apply. "Or approved equal" means any other brand that is equal in use, quality, economy and performance to the brand listed as determined by the Division of Purchasing & General Services (DIVISION). If the bidder lists a trade name and/or catalog number in the bid, the DIVISION will assume the item meets the specifications unless the bid clearly states it is an alternate, and describes specifically how it differs from the item specified. **MULTIPLE OR ALTERNATE BIDS WILL NOT BE ACCEPTED UNLESS SO STATED IN THE SPECIFICATIONS.** (f) By signing the bid the bidder certifies that all of the information provided is accurate, and that prices bid are correct. (g) This bid may not be withdrawn for a period of 60 days from bid due date.
2. **SUBMITTING THE BID:** (a) The bid must be signed in ink, sealed in a properly-addressed envelope, and either mailed or delivered to the DIVISION OF PURCHASING, 3150 State Office Building, Capitol Hill, Salt Lake City, UT 84114-1061 by the "Due Date and Time." **The "Bid Number" and "Due Date" must appear on the outside of the envelope.** (b) Bids, modifications, or corrections received after the closing time on the "Due Date" will be considered late and handled in accordance with the Utah Procurement Rules, section R33-3-109. (c) **Your bid will be considered only if it is submitted on the forms provided by the state. Facsimile transmission of bids to DIVISION will not be considered.** (d) All prices quoted must be both F.O.B. Origin per paragraph 1.(c) and F.O.B. Destination. Additional charges including but not limited to delivery, drayage, express, parcel post, packing, cartage, insurance, license fees, permits, costs of bonds, or for any other purpose must be included in the bid for consideration and approval by the DIVISION. Upon award of the contract, the shipping terms will be F.O.B. Destination, Freight Prepaid with freight charges to be added to the invoice unless otherwise specified by the DIVISION. (e) All State purchases are subject to the Utah Procurement Code, Title 63, Chapter 56 Utah Code Annotated 1953, as amended, and the Procurement Rules as adopted by the Utah State Procurement Policy Board (Utah Administrative Code Section R33).
3. **FAILURE TO BID:** Failure to respond may result in the removal of your firm from the bidder's list for the commodity(s) listed, unless you advise DIVISION in writing prior to due date that you desire to receive future invitations to bid on this commodity(s). **Three consecutive no responses will automatically result in removal.**
4. **PROPRIETARY INFORMATION:** Suppliers are required to mark any specific information contained in their bid which is not to be disclosed to the public or used for purposes other than the evaluation of the bid. Each request for nondisclosure must be accompanied by a specific justification explaining why the information is to be protected. Pricing and service elements of any bid will not to be considered proprietary. Bids submitted may to be reviewed and evaluated by any persons at the discretion of the state.
5. **BONDS:** The state has the right to require a bid bond, payment bond and/or a faithful performance bond from the bidder in an amount not to exceed the amount of the contract.
6. **SAMPLES:** Samples of item(s) specified in this bid, when required by DIVISION, must be furnished free of charge to DIVISION. Any item not destroyed by tests may, upon request made at the time the sample is furnished, to be returned at the bidder's expense.
7. **WARRANTY:** The contractor agrees to warrant and assume responsibility for all products (including hardware, firmware, and/or software products) that it licenses, contracts, or sells to the State of Utah under this contract for a period of one year, unless otherwise specified and mutually agreed upon elsewhere in this contract. The contractor (seller) acknowledges that all warranties granted to the buyer by the Uniform Commercial Code of the State of Utah applies to this contract. Product liability disclaimers and/or warranty disclaimers from the seller are not applicable to this contract unless otherwise specified and mutually agreed upon elsewhere in this contract. In general, the contractor warrants that: (1) the product will do what the salesperson said it would do, (2) the product will live up to all specific claims that the manufacturer makes in their advertisements, (3) the product will be suitable for the ordinary purposes for which such product is used, (4) the product will be suitable for any special purposes that the State has relied on the contractor's skill or judgement to consider when it advised the State about the product, (5) the product has been properly designed and manufactured, and (6) the product is free of significant defects or unusual problems about which the State has not been warned. Remedies available to the State include the following: The contractor will repair or replace (at no charge to the State) the product whose nonconformance is discovered and made known to the contractor in writing. If the repaired and/or replaced product proves to be inadequate, or fails of its essential purpose, the contractor will refund the full amount of any payments that have been made. Nothing in this warranty will be construed to limit any rights or remedies the State of Utah may otherwise have under this contract.
8. **DIVISION APPROVAL:** Purchase orders placed, or contracts written, with the state of Utah, as a result of this bid, will not to be legally binding without the written approval of the director of the DIVISION.
9. **AWARD OF CONTRACT:** (a) the contract will to be awarded with reasonable promptness, by written notice, to the lowest responsible bidder that meets the specifications. Consideration will to be given to the quality of the product(s) to be supplied, conformity to the specifications, the purpose for which required, delivery time required, discount terms and other criteria set forth in this invitation to bid. (b) The bids are opened publicly in the presence of one or more witnesses. the name of each bidder, and the amount of the bid is recorded. Each bid, and the record, is open to public inspection. (c) The DIVISION may accept any item or group of items, or overall low bid. the DIVISION has the right to cancel this invitation to bid at any time prior to the award of contract. (d) The DIVISION can reject any and all bids. And it can waive any informality, or technicality in any bid received, if the DIVISION believes it would serve the best interest of the State. (e) Before, or after, the award of a contract the DIVISION has the right to inspect the bidder's premises and all business records to determine the holder's ability to meet contract requirements. (f) DIVISION does not guarantee to make any purchase under awarded contract(s). Estimated quantities are for bidding purposes only, and not to be interpreted as a guarantee to purchase any amount. (g) Utah has a reciprocal preference law which will to be applied against bidders bidding products or services produced in states which discriminate against Utah products. For details see Section 63-56 20.5 -20.6, Utah Code Annotated.
10. **ANTI-DISCRIMINATION ACT:** The bidder agrees to abide by the provisions of the Utah Anti-discrimination Act, Title 34 Chapter 35, U.C.A. 1953, as amended, and Title VI and Title VII of the Civil Rights Act of 1964 (42 USC 2000e), which prohibit discrimination against any employee or applicant for employment, or any applicant or recipient of services, on the basis of race, religion, color, or national origin; and further agrees to abide by Executive Order No. 11246, as amended, which prohibits discrimination on the basis of sex; 45 CFR 90 which prohibits discrimination on the basis of age, and Section 504 of the Rehabilitation Act of 1973 or the Americans with Disabilities Act of 1990, which prohibits discrimination on the basis of disabilities. Also bidder agrees to abide by Utah's Executive Order, dated March 17, 1993, which prohibits sexual harassment in the workplace. Vendor must include this provision in every

subcontract or purchase order relating to purchases by the State of Utah to insure that the subcontractors and vendors are bound by this provision.
revision date: 2/14/2000

**STATE OF UTAH
DIVISION OF PURCHASING**

BOND STATEMENT

BIDDING REQUIREMENTS

A 5% bid bond or cashier's check is required by all vendors bidding on this project. The bid bond must be attached to bid or it will be disqualified. Checks submitted will be returned certified mail after an official award has been made.

AWARD REQUIREMENTS

A 100% performance/payment bond will be required from the award vendor within 14 days after notification of award. Bonds must be in the form of a cashiers checks (no personal or business checks) or a surety bond from a licensed surety company doing business in the State of Utah.

Performance/payment bonds (or checks) will be **held as security for a period of 12 months after completion of project, per state law.** Checks submitted will be returned certified mail only after this specified time. Bidders name must be the same on both the bid forms and all bonds submitted.

Please indicate which method of bonding will be used if awarded this job:

_____ 100% CASHIERS CHECK

_____ 100% PERFORMANCE/PAYMENT BOND

Bond/Ins. Company_____

Agent Name_____

Fax #_____ Phone #_____

Upon awarding, the requesting agency will fax a verification to the bonding company listed above to start the bonding process. It is then the responsibility of the vendor or follow through with their bonding agent to assure the bond is processed. After the bonding company sends the bond to vendor for signatures, it is the responsibility of the vendor to mail or hand carry the original bond (no copies or faxes accepted) to the requesting agency, to the attention of the contract person listed on the bid. **No work can commence until the requesting agency has receipt of this performance/payment bond.** After this time the contract will be officially released to the award vendor.

CONSTRUCTION TRADES LICENSING REQUIREMENTS

The State of Utah requires any person engaging in a construction trade or acting as, or representing oneself as a contractor in a construction trade for which licensure is required to be licensed **before engaging in that trade or contracting activity. It is unlawful for any unlicensed person to submit a bid for any work for which a license is required.** Any person who violates this provision **cannot be awarded or accept a contract** for the performance of the work (1993 Utah Code Unannotated 58-55-2(32)(a), 58-55-4(1)(a), 58-55-13(1).

Definitions

"Construction Trade" means any trade or occupation involving construction, alteration, remodeling, repairing, wrecking or demolition, addition to, or improvement of any building, highway, road, railroad, dam, bridge, structure, excavation or other project, development, or improvement to other than personal property (1993 UCU 58-55-2(5)).

"Contractor" means any person, firm, partnership, corporation, association, or other organization...(that undertakes any work in the construction, plumbing, or electrical trade for which licensure is required...(1993 UCU 58-55-2(6)).

Licensed Classifications (See next page.) List the appropriate contractor license number, classification title, primary or secondary classifications number, aggregate dollar limit and license expiration date OR attach a copy of the license. If you plant to utilize subcontractors, they must also be licensed and the same information provided or copy(ies) of license(s) attached:

Prime Contractor

<u>License Number</u>	<u>Expiration Date</u>	<u>Class Title</u>	<u>Class Number</u>	<u>Dollar Limit</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Sub-Contractor(s)

<u>License Number</u>	<u>Expiration Date</u>	<u>Class Title</u>	<u>Class Number</u>	<u>Dollar Limit</u>
Name: _____				
_____	_____	_____	_____	_____
Name: _____				
_____	_____	_____	_____	_____
Name: _____				
_____	_____	_____	_____	_____

CONTRACTOR LICENSE CLASSIFICATIONS

Primary Classification <u>Number</u>	Subclassification <u>Number</u>	<u>Title</u>
E100		General Engineering Contractor
B100		General Building Contractor
R100		Residential and Small Commercial Contractor
	R101	Residential and Small Commercial - Nonstructural
		Remodeling and Repair Contractor
R200		Factory Built Housing Set-up Contractor
S200		General Electrical Contractor
	S201	Residential Electrical Contractor
S210		General Plumbing Contractor
	S211*	Boiler Installation Contractor
	S212	Irrigation Sprinkling Contractor
	S213	Industrial Piping Contractor
	S214*	Water Conditioning Equipment Contractor
S215		Solar Energy Systems Contractor
S216		Residential Sewer Connection & Septic Tank Contractor
S220		Carpentry Contractor
	S221*	Cabinet and Millwork Installation Contractor
S230		Metal and Vinyl Siding Contractor
	S231*	Rain-gutter Installation Contractor
S240		Glass and Glazing Contractor
S250		Insulation Contractor
S260		General Concrete Contractor
	S261*	Concrete Form Setting and Shoring Contractor
	S262*	Gunite and Pressure Grouting Contractor
S270		General Drywall, Stucco and Plastering Contractor
	S271*	Plastering Stucco Contractor
	S272*	Ceiling Grid Systems, Ceiling Tile and Light-weight
		Metal and Non-bearing Wall Partitions Contractor
S280		General Roofing contractor
	S281*	Single Ply and Specialty Coating Contractor
	S282*	Build-up Roofing Contractor
	S283	Shingle and Shake Roofing Contractor
	S284*	Tile Roofing Contractor
	S285*	Metal Roofing Contractor
S290		General Masonry Contractor
	S291*	Stone Masonry Contractor
	S292*	Terrazzo Contractor
	S293*	Marble, tile and Ceramic Contractor
S300		General Painting Contractor
S310		Excavation and Grading Contractor
S320		Steel Erection Contractor
	S321	Steel Reinforcing Contractor
	S322*	Metal Building Erection Contractor
	S323*	Structural Stud Erection Contractor
S330		Landscaping Contractor
S340		Sheet Metal Contractor
S350		HVAC Contractor
	S351	Refrigerated Air Conditioning Contractor
	S352*	Evaporative Cooling Contractor
	S353*	Warm Air Heating Contractor
S360		Refrigeration Contractor
S370		Fire Suppression systems Contractor
S380		Swimming Pool and Spa Contractor
S390		Sewer and Water Pipeline Contractor
S400*		Asphalt Paving Contractor
S410		Pipeline and Conduit Contractor
S420*		General Fencing and Guardrail Contractor
	S421*	Residential Fencing Contractor
S430*		Metal Firebox and Fuel Burning Stove Installation Contractor
S440		Sign Installation Contractor
	S441*	Non-Electrical Outdoor Advertising Sign Contractor
S450		Mechanical Insulation Contractor
S460*		Wrecking and Demolition Contractor
S470*		Petroleum System Contractor
S480*		Piers and Foundations Contractor

*No Trade Examination is required. All applicants must take and pass the Utah Business and Law Examination if not previously taken and passed.

General Instruction
And
Specifications

Kodachrome State Park
Culinary Water Line Replacement

February 2003

WORK DESCRIPTION:

Supply all necessary material and labor for the replacement of approximately 25,000 feet of 2" water line from the spring to the new water storage tank with 4" diameter PVC pipe per plans and specifications provided.

A pre-bid site inspection will be held at Kodachrome State Park Headquarters at 10:00 AM on Wednesday, March 5, 2003.

Kodachrome State Park is located approximately 5 miles south of Cannonville, Utah. It is highly recommended that all contractors, or their representative, planning to bid this project attend this pre-bid site inspection.

For further information contact Brent Lloyd, Project Coordinator, at:

*State of Utah Department of Natural Resources,
Division of Parks and Recreation
1594 West North Temple, Suite 116
Salt Lake City, Utah 84114-6001
Telephone (801) 538-7349 Fax (801) 538-7378*

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Drawings

To be obtained through Brent Lloyd at 801-538-7349 or brentlloyd@utah.gov.

KODACHROME STATE PARK
DFCM Project #02137510
(Replacing approximately 25,000 feet of 2" spring line
with 4" diameter PVC Pipe)

No.	Item	Quantity	Units	Unit price	Total
	Mobilization	1	L.S.	XXXX	
	4" Dia. Class 200 PVC Waterline	25000	L.F.		
	3/4" Dia. Service Connection for Stock Watering	2	Each		
	1" Combination Air-Vac Air Release Valve Complete	8	Each		
	3" Dia. Gate Valves and Box	3	Each		
	3" Dia. Settling Basin Bypass	1	L.S.	XXXX	
	2" Dia. Drain Line Connection	6	Each		
	Salvage Existing 1/2" Air Release Valves and Abandon Manhole	6	Each		
	Reconnect Existing Air Release Valve to New Line	2	Each		
TOTAL OF ALL ESTIMATED PRICES					

SECTION 01275
MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

1. Measurement and payment criteria applicable to Work performed under unit price payment method.
2. Defect assessment and non-payment for rejected work.

1.2 AUTHORITY

1. Measurement methods delineated in individual specification sections complement criteria of this section. In event of conflict, requirements of individual specification section govern.
2. Engineer will take measurements and compute quantities accordingly.
3. Assist by providing necessary equipment, workers, and personnel as required.

1.3 UNIT QUANTITIES SPECIFIED

1. Quantities indicated in Bid Form are for bidding and contract purposes only. Quantities and measurements supplied or placed in Work and verified by Engineer determine payment.
2. If actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at unit sum/prices contracted.
3. If actual Work requires 25 percent or greater change in quantity than those quantities indicated, Owner or Contractor may claim for Contract Price adjustment.
4. If there is no bid item for certain work, include cost in related bid item.

1.4 MEASUREMENT OF QUANTITIES

1. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.
2. Measurement by Area: Measured by square dimension using mean length and width or radius.
3. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
4. Measurement by Unit: Measured by number of each unit of work.
5. Lump Sum: No measurement made.

1.5 PAYMENT

1. Payment Includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of item of Work; overhead and profit.
2. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit sum/price for Work which is incorporated in or made necessary by Work.

1.6 DEFECT ASSESSMENT

1. Replace Work, or portions of Work, not conforming to specified requirements.
2. If, in opinion of Engineer, it is not practical to remove and replace Work, Engineer will direct one of following remedies:
 1. Defective Work may remain, but unit sum/price will be reduced up to 50 percent at discretion of Engineer.
 2. Defective Work will be partially repaired to instructions of Engineer, and unit sum/price will be adjusted to new sum/price at discretion of Engineer.
 3. Individual specification sections may modify these options or may identify specific formula or percentage sum/price reduction.

1.7 NON-PAYMENT FOR REJECTED PRODUCTS

1. Payment will not be made for any of following:
 1. Products wasted or disposed of in manner that is not acceptable.
 2. Products determined as unacceptable before or after placement.
 3. Products not completely unloaded from transporting vehicle.
 4. Products placed beyond lines and levels of required Work.
 5. Products remaining on hand after completion of Work.
 6. Loading, hauling, and disposing of rejected Products.

1.8 SCHEDULE OF UNIT PRICES

1. Bid Schedule:
 1. Mobilization - Section 01505.
 2. 4" Dia. Class 200 PVC Water Line - Section 02512.
 3. 3/4" Dia. Service Connection for Stock Watering - Section 02512.
 4. 1" Combination Air-Vac Air Release Valve - Section 02512.
 5. 3" Dia. Gate Valve and Box - Section 02512.
 6. 3" Dia. Settling Basin Bypass - Section 02512.
 7. 2" Dia. Drain Line Connection - Section 02512.
 8. Salvage Existing 1/2" Air Release Valves and Abandon Manhole - Section 02225.
 9. Reconnect Existing Air Release Valve to New Line - Section 02512.

1.9 DEFINITIONS

1. Unit abbreviations used in Bid Schedules are defined as follows:
 1. C.Y. - Cubic yard.
 2. L.F. - Linear foot.
 3. L.S. - Lump sum.
 4. S.Y. - Square yard.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01315

PROJECT COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

5. Coordination.
6. Field engineering.
7. Preconstruction meeting.
8. Progress meetings.

1.2 RELATED SECTIONS

9. Section 01330 - Submittal Procedures.

1.3 COORDINATION

10. Coordinate scheduling, submittals, and related work items to ensure efficient and orderly sequence of construction elements.
11. For distribution system, provide verbal and written notification to Kodachrome State Park and residents at least 24 hours in advance of water shut-offs. Minimize time water is shut-off. If water will be shut-off more than 8 hours, then provide temporary service lines to residents and businesses.
12. For spring supply line, provide verbal and written notification to Kodachrome State Park 24 hours in advance of water shut-offs. Minimize time water is shut off. Coordinate with State Park Officials to ensure that storage tank is full prior to shut-offs. The storage tank may supply the park and residents for several days, depending on usage. The spring may only be diverted until the water level in the tank falls below 50% or as directed by the State Park officials.
13. Proceed with Work in timely manner to minimize delays and inconveniences.

14. Coordinate types of equipment used with site conditions encountered.

1.4 PRECONSTRUCTION MEETING

15. Engineer will schedule meeting after bonds have been received and agreement is signed by Contractor.
16. Attendance Required: Job Superintendent, Owner, Engineer, Resident Project Representative, and major Subcontractors and suppliers as appropriate.
17. Agenda:
 1. General discussion of contract.
 2. Submission of list of Subcontractors, list of material suppliers, list of equipment, and construction schedule.
 3. Designation of personnel representing parties in Contract.
 4. Procedures and processing of field decisions, submittals, substitutions, applications for payments, Change Orders, and Contract closeout procedures.
 5. Scheduling.
 6. Funding agency requirements, EEO, cultural resources, and Copeland Act.
18. Engineer will record minutes and distribute copies to participants.

1.5 PROGRESS MEETINGS

19. Engineer will schedule and administer weekly progress meetings throughout progress of Work as needed.
20. Attendance Required: Job Superintendent, Owner, Engineer, and major Subcontractors and suppliers as appropriate to agenda topics for each meeting.
21. Agenda:
 7. Review of Work Progress.
 8. Field observations, problems, and decisions.
 9. Identification of problems which impede planning progress.
 10. Maintenance of progress schedule.
 11. Other business relating to Work.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01330
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- 22. Submittal procedures.
- 23. Construction progress schedule and plan.
- 24. Reports, test data and samples.

1.2 RELATED SECTIONS

- 25. Section 01315 - Project Coordination and Meetings.

1.3 SUBMITTAL PROCEDURES

- 26. Identify Project, Contractor, Subcontractor or supplier as appropriate.
- 27. Identify variations from Contract Documents.
- 28. When revised for resubmission, identify all changes made since previous submission.
- 29. Schedule submittals to expedite Project, and deliver to Engineer at business address. Coordinate submission of related items.
- 30. For each submittal for review, allow 10 days for review, excluding delivery time to and from Engineer.

1.4 CONSTRUCTION PROGRESS SCHEDULE AND PLAN

- 31. Submit two copies of preliminary construction progress schedule before or at Preconstruction Meeting.
- 32. Revise and resubmit monthly with each partial pay estimate.
- 33. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities.

1.5 REPORTS, TEST DATA AND SAMPLES

34. Submit number of copies or samples as indicated in individual specification sections.
35. Submit information and documentation of project.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01450

QUALITY CONTROL AND ACCEPTANCE

PART 1 GENERAL

1.1 SECTION INCLUDES

- 36. Control of Work.
- 37. Quality control testing.
- 38. Acceptance testing.
- 39. Nonconforming Work.

1.2 RELATED SECTIONS

- 40. Section 01330 - Submittal Procedures.

1.3 CONTROL OF WORK

- 41. Monitor quality control over suppliers, manufactures, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- 42. Comply with specified standards as minimum quality of Work, except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- 43. Perform Work by persons qualified to produce required quality.

1.4 QUALITY CONTROL TESTING

- 44. Quality control testing indicated in individual sections is to be performed by Contractor or Contractor's representative. Include cost in related bid item.
- 45. Perform quality control testing at minimum frequency indicated. Perform additional tests as required to ensure materials and Work are in accordance with requirements of Contract Documents.

Perform testing during progress of Work, unless indicated otherwise.

- 46. Submit quality control test results to Engineer in accordance with Section 01330.

1.5 ACCEPTANCE TESTING

- 47. Engineer will perform random acceptance testing to verify Contractor's quality control testing. Acceptance testing will be performed at no cost to Contractor.
- 48. Acceptance testing will govern over quality control testing performed by Contractor.
- 49. Engineer will provide copy of acceptance test results to Contractor.
- 50. Provide timely notice to Engineer as to progress of Work and readiness for testing.
- 51. Acceptance testing is for sole benefit of Owner and shall not:
 - 12. Relieve Contractor of responsibility for providing adequate quality control measures;
 - 13. Relieve Contractor of responsibility for damage to or loss of Work before acceptance;
 - 14. Constitute or imply final acceptance; or
 - 15. Affect rights of Owner after acceptance of completed Work.

1.6 NONCONFORMING WORK

- 52. Nonconforming work, whether discovered by Contractor or Engineer, shall be corrected or replaced at no cost to Owner.
- 53. Materials or work, which fail quality control or acceptance testing, shall be rejected.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- 54. Water control.
- 55. Dust control.
- 56. Protection of installed work.
- 57. Progress cleaning and waste removal.
- 58. Removal of facilities and controls.

1.2 RELATED SECTIONS

- 59. Section 01505 - Mobilization.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 WATER CONTROL

- 60. Grade construction areas to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- 61. Protect construction areas from puddling or running water. Provide water barriers as required to protect construction areas from soil erosion.
- 62. Provide temporary drainage for storm water. Make repairs to correct any damage caused by temporary or lack of temporary drainage.

3.2 DUST CONTROL

63. Provide adequate water supply for dust control at any time.

64. Do not waste water or over saturate construction areas.

3.3 BARRIERS AND TRAFFIC REGULATION

65. Provide barricades, barriers, and signs to prevent unauthorized entry to construction areas and to protect public.

66. Provide barriers to protect existing facilities and adjacent properties from damage from construction operations.

3.4 PROTECTION OF INSTALLED WORK

67. Protect installed Work and provide special protection where specified in individual specification sections.

68. Provide temporary and removable protection for installed materials. Control activity in immediate work area to prevent damage.

3.5 PROGRESS CLEANING AND WASTE REMOVAL

69. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.

70. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.

3.6 REMOVAL OF FACILITIES AND CONTROLS

71. Remove temporary utilities, equipment, facilities, materials, signs, controls, prior to final inspection.

72. Clean and repair damage caused by installation or use of temporary work.

73. Restore areas and facilities used during construction to original condition.

END OF SECTION

SECTION 01505

MOBILIZATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- 74. Mobilization.

1.2 RELATED SECTIONS

- 75. Section 01500 - Temporary Facilities and Controls.

1.3 MOBILIZATION

- 76. Preparatory work and operations necessary for moving personnel, equipment, supplies and incidentals to project site before beginning work.
- 77. Establishment of offices, buildings and other necessary facilities.
- 78. Furnish, erection and maintenance of construction signs.

1.4 MEASUREMENT

- 79. No measurement will be made for mobilization.

1.5 PAYMENT

- 80. Payments will be made in accordance with Table 01505-1.
- 16. Percent of Original Contract Earned: Sum of amounts for bid items completed, excluding mobilization, divided by amount of original contract.
- 17. Mobilization payment will be mobilization payment calculated from Table 01505-1 less previous amount paid.
- 18. Mobilization payments will be calculated separately for each Bid Schedule.

Table 01505-1 PAYMENT SCHEDULE FOR MOBILIZATION	
Percent of Original Contract Amount Earned	Mobilization Payment (Use lesser amount)
5	25% of mobilization bid amount or 2.5% of original contract amount
10	50% of mobilization bid amount or 5% of original contract amount
35	60% of mobilization bid amount or 6% of original contract amount
65	90% of mobilization bid amount or 9% of original contract amount
80	100% of mobilization bid amount or 10% of original contract amount
Completion of Project	Remainder of Bid Amount

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01700
EXECUTION REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

3. Final cleaning.
4. Adjusting.
5. Project record documents.
6. Maintenance products.

1.2 RELATED SECTIONS

4. Section 01500 - Temporary Facilities and Controls.

1.3 FINAL CLEANING

5. Execute final cleaning prior to final inspection.
6. Clean site; rake and landscaped surfaces.
7. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.4 ADJUSTING

6. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.5 PROJECT RECORD DOCUMENTS

1. Maintain on site one set of project record drawings and record actual revisions to Work:
 1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other Contract modifications.
 5. Reviewed Shop Drawings, Product Data and Samples.
 6. Manufacturer's instruction for assembly, installation, and adjusting.

2. Ensure entries are complete and accurate, enabling future references by Owner.
3. Store record documents separate from documents used for construction.
4. Record information concurrent with construction progress.
5. Specifications: Legibly mark and record at each Product section description of actual Products installed, including as follows:
 7. Manufacturer's name and product model and number.
 8. Product substitutions or alternates utilized.
 9. Changes made by Addenda and modifications.
6. Record Drawings: Legibly mark each item to record actual construction including:
 10. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 11. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 12. Field changes of dimension and detail.
 13. Details not on original Contract drawings.
7. Submit documents to Engineer prior to application for final payment.

1.6 MAINTENANCE PRODUCTS

81. Provide maintenance, and extra Products in quantities specified in individual specification sections.
82. Deliver to Project Site.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 02225
SELECTIVE SITE DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

- 83. Salvage existing air release valve and abandon manhole.

1.2 RELATED SECTIONS

- 84. Section 01315 - Project Coordination & Meetings.
- 85. Section 02321 - Trenching.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- 14. Salvage existing 1/2" air release valves and abandon manhole.
 - 1. Measurement: By unit.
 - 2. Payment: Includes excavation, salvage of air release valve, removal of above grade improvements, and backfill and compaction of manhole.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

- 86. Verify location, material and depth of items to be removed.

3.2 PREPARATION

- 87. Provide, erect, and maintain temporary barriers and safety devices.
- 88. Provide water to control and minimize dust.
- 89. Excavate as needed to expose and remove air release valve and piping.

90. Backfill and compact manhole.

3.3 DEMOLITION

91. Carefully remove, disassemble, or dismantle existing air release valve setup as required. Remove all portions that interfere with new construction.
92. Preserve integrity of valve for future use.
93. Owner has first salvage rights to materials to be removed.
94. Dispose of non-salvaged materials off site.

3.4 BACKFILL AND COMPACTION

95. Place backfill and compact in excavated areas in accordance with Section 02321.

3.5 PROTECTION

96. Protect existing items which are to remain.

END OF SECTION

SECTION 02321

TRENCHING

PART 1 GENERAL

1.1 SECTION INCLUDES

7. Excavating trenches for utilities.
8. Backfill and compaction for utility trenches.

1.2 RELATED SECTIONS

5. Section 01500 - Temporary Facilities & Control.
6. Section 02512 - Culinary Water System.

1.3 REFERENCES

1. American Association of State Highway and Transportation Officials (AASHTO):
 1. AASHTO M145 - The Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes.
 2. AASHTO T99 - Moisture-Density Relations of Soils Using a 5.5-lb. (2.5 kg) Rammer and a 12-in. (305 mm) Drop.
 3. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb. (4.54 kg) Rammer and an 18-in. (457 mm) Drop.
2. American Society for Testing and Materials (ASTM):
 1. ASTM D2922 - Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.4 DEFINITIONS

7. Utility: Any buried pipe, duct, conduit, cable and appurtenance.
8. Soil Classification: AASHTO M145.

1.5 SUBMITTALS

8. Test Results: Submit proctor and density test results on same day testing is completed. If Resident Project Representative is not available on day testing is completed, then submit on next work day.

PART 2 PRODUCTS

2.1 MATERIALS

1. Backfill: Excavated material free from rubbish, debris, organic material, frozen material, or other objectionable material.
1. Rocks originating from trench and not exceeding 12 inches.
2. Broken portland cement concrete and asphalt concrete pavement originating from trench and not exceeding 6 inches.
3. If excavated material is not suitable for backfill, import granular material.

PART 3 EXECUTION

3.1 PREPARATION

4. Identify required location and elevation of utility lines.
5. Protect plant life, lawns, fences, existing structures, and other features remaining.
6. Protect bench marks and control points.
7. Locate, maintain and protect above and below grade utilities which are to remain.
8. Clear vegetation, debris, and rubbish from utility alignment. Dispose of material off site.
9. When trench is in sodded areas, carefully remove sod and stockpile for placement after backfill is placed.

3.2 EXCAVATION

2. Excavate subsoil required for installation of utility lines.

3. Cut trenches sufficiently wide to enable installation of pipe and appurtenances and allow inspection. Cut slope of trench walls to meet Utah State Industrial Commission and OSHA requirements and soil conditions. Provide shoring where needed. Take all necessary precautions to protect employees in or around excavations.
4. Remove water from trench. Dewatering of trench will be considered incidental and be included in bid price.
5. Hand trim excavation for bell and spigot pipe joints. Remove materials that interfere with Work.
6. Remove lumped subsoil, boulders, and rock.
7. Correct areas over excavated and recompact.
8. Stockpile excavated material along side of trench or in other areas to minimize damage to improvements.
9. No more than 500 linear feet of open trench permitted. At end of each work day, bring backfill operation concurrent with excavation operation.
10. For pipe, minimum width of trench shall not be less than outside diameter of pipe plus 12 inches on each side of pipe.

3.3 BACKFILL

7. After utilities, appurtenances, and bedding have been installed, backfill trenches. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
8. Backfill in layers not exceeding 12 inches non-compacted depth. Reduce layer thickness if tests show unsatisfactory density. Use hand-operated compaction equipment in areas inaccessible to self-propelled compaction equipment, such as around valve boxes, fire hydrants, and meter barrels.
9. Maintain moisture content of fill materials within plus or minus 2 percent of optimum to attain required compaction density.

10. Do not place rocks larger than 2 ½ inches in backfill placed within 12 inches of pavement subgrade. Mix rocks with finer material to minimize voids.
11. Employ placement method that does not disturb or damage utilities.
12. Grade surplus material to blend in with existing contours or remove surplus materials from site if necessary.
13. Restore damaged surface improvements including, but not limited to: fences, ditches, culverts, lawns, structures, and other miscellaneous items. Restore improvements to equal or better condition as existed prior to construction.
14. Make roadway repairs or construct temporary gravel surface immediately after backfill is placed. Maintain gravel surface until final surface is placed.

3.4 TOLERANCES

2. Top Surface of General Backfilling: Plus or minus 6 inches from required elevations.

3.5 QUALITY CONTROL TESTING

1. Perform compaction tests in accordance with ASTM D2922. Determine maximum laboratory density in accordance with AASHTO T180, Method D for A-1 soils and AASHTO T99, Method D for other soils.
1. Frequency: Random density tests. Take minimum of one density test per street crossing and one density test per block. Provide proctors for each soil type encountered.
2. Acceptance: Average density equals or exceeds density in article 3.7 Schedule. Reject single density tests greater than 4 percent below specified density.
3. If tests indicate Work is not acceptable, re-compact and retest. If necessary, remove and replace Work.

3.6 PROTECTION OF FINISHED WORK

2. Protect finished Work.

3. Reshape and re-compact fill areas subjected to vehicular traffic during construction.

3.7 SCHEDULE

97. Backfill to match existing ground surface, compact to 70 percent of maximum laboratory density.

END OF SECTION

SECTION 02512
CULINARY WATER SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

- 98. Pipe, valves, and fittings for culinary water lines.
- 99. Service lines, connections and meters.
- 100. Thrust restraint devices.
- 101. Disinfection.
- 102. Pressure testing.

1.2 RELATED SECTIONS

- 103. Section 01330 - Submittal Procedures.
- 104. Section 02321 - Trenching.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

- 105. Pipe:
 - 4. Measurement: By linear foot for each size indicated. Pipe included in lump sum items will not be measured.
 - 5. Payment: Includes excavation, pipe, fittings, thrust restraint devices, bedding, backfill, compaction, cleaning, disinfection, pressure testing, bacteriological testing, trench compaction testing, abandon existing lines.
- 106. Valves:
 - 6. Measurement: By each unit for each size and type indicated. Valves included in lump sum items will not be measured.
 - 7. Payment: Includes valve, fittings, box, cover, valve keys, excavation, bedding, backfill, compaction.
- 107. Service Connection:
 - 8. Measurement: By each unit for each size indicated.
 - 9. Payment: Includes tapping main line, saddle, corporation stop, fittings, excavation, bedding, backfill, compaction.
- 108. Combination Air-Vac Air Release Valve:
 - 10. Measurement: By each unit for size and type indicated.

11. Payment: Includes excavation, saddle, drain rock, barrel, lid, ball valve, air release valve, piping, fittings, vent cap, guard pipe, backfill, and compaction.
109. 3" Dia. Settling Basin Bypass:
12. Measurement: None.
13. Payment: Includes excavation, pipe, fittings, bedding, backfill, compaction.
110. Drain Line Connection:
14. Measurement: By each unit for size indicated.
15. Payment: Includes excavation, pipe, fittings, connection to existing drain line, backfill, compaction.
111. Reconnect Existing Air Release Valve to New Line:
16. Measurement: By each unit.
17. Payment: Includes excavation, saddle, piping, fittings, backfill, compaction.

1.4 REFERENCES

112. American Society for Testing and Materials (ASTM):
18. ASTM C478 - Precast Reinforced Concrete Manhole Sections.
19. ASTM D1248 - Polyethylene Plastics Molding & Extrusion Materials.
20. ASTM D1785 - Poly (VinylChloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
21. ASTM D2239 - Polyethylene Plastic Pipe (SDR-PR).
22. ASTM D2241 - Poly (VinylChloride) (PVC) Plastic Pipe (SDR-PR).
23. ASTM D2737 - Polyethylene (PE) Plastic Tubing.
24. ASTM F477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
113. American Water Works Association AWWA:
25. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
26. AWWA C110 - Gray-Iron and Ductile-Iron Fittings, 2 inch Through 48 inch for Water and Other Liquids.
27. AWWA C111 - Rubber-Gasket Joints for Cast-Iron and Ductile-Iron Pressure Pipe and Fittings.
28. AWWA C115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
29. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
30. AWWA C502 - Dry Barrel Fire Hydrants.
31. AWWA C509 - Resilient Seated Gate Valves 3 in through 12 in NPS, for Water and Sewage Systems.
32. AWWA C651 - Disinfecting Water Mains.
33. AWWA C700 - Cold-Water Meters - Displacement Type, Bronze Main Case.

- 34. AWWA C704 - Propeller-Type Meters for Water Works Applications.
- 35. AWWA C800 - Threads for Underground Service Line Fittings.
- 36. AWWA C901 - Polyethylene (PE) Pressure Pipe, Tubing, and Fittings, ½ inch through 3 inch, for Water.
- 114. National Sanitation Foundation (NSF):
- 37. NSF-14 - Standard for Thermoplastic Materials, Pipe, Fittings, Valves, Traps and Joining Materials.

1.5 DEFINITIONS:

- 115. Abandon existing lines: After new water main lines are ready for use and service connections are complete, cut and plug existing water main lines that will no longer be used. Remove existing fittings such as valves, tees and crosses which are no longer required, and add piping as necessary to make repairs. Completely remove surface items, such as valve boxes. Do not leave abandoned lines under pressure. Abandoning lines is incidental to pipe work.
- 116. Bedding: Fill placed under, beside, and directly over pipe to 12 inches above top of pipe, prior to subsequent backfill operations.

1.6 SYSTEM REQUIREMENTS

- 117. Minimum Burial Depth:
- 38. Main Lines: 4 feet.
- 39. Service Lines: 3 feet.

1.7 SUBMITTALS

- 118. Product Data: Provide data on pipe, pipe fittings, tap saddles, corporation stops, valves, service line, thrust restraint devices, tracer wire, air release valves.
- 119. Test Results: Submit one copy of each bacteriological test results.

1.8 REGULATORY REQUIREMENTS

- 120. Conform to requirements of Utah Department of Environmental Quality.

PART 2 PRODUCTS

2.1 PIPE

- 121. PVC Pipe: 4 inch diameter and larger.
- 40. Class 200, SDR 21, PVC pipe in accordance with ASTM D2241.

- 41. Bell and spigot joints with elastomeric gaskets in accordance with ASTM F477.
- 42. Color: Blue.
- 43. Be NSF approved and bear NSF label.
- 44. Pipe Fittings: Cast iron or ductile iron in accordance with AWWA C110 and rubber gasket joints in accordance with AWWA C111.
- 122. PVC Pipe: 3 inch diameter when indicated on Drawings.
- 45. ASTM D1785, Schedule 40.
- 46. Joints & Fittings: Schedule 80, threaded or solvent weld as required.

2.2 VALVES

- 123. Gate Valve: AWWA C509, iron body, bronze trim, non-rising stem with 2 inch square operator nut, single wedge, resilient seat, mechanical joint ends unless otherwise indicated. Rated for 200 pounds per square inch working pressure. Shall open by turning operator nut counter-clockwise.
- 124. Valve Box & Cover: Cast iron, extension sleeve type, cast word "WATER" on cover.

2.3 SERVICES

- 125. Tap Saddle: Nylon Coated Saddle with stainless steel strap. Manufactured by Romac Industries, Inc. or-equal.
- 47. Provide full support around circumference of pipe.
- 48. Provide 2 inch minimum bearing area along pipe.
- 49. Not have lugs which will dig into pipe.
- 50. Not have U-bolt type strap.
- 126. Corporation Stop: Bronze body, in accordance with AWWA C800. Standard iron pipe threads, compression fittings for polyethylene pipe, and tubing, stainless steel inserts stiffeners. Ford Ballcorp as manufactured by The Ford Meter Box Company, Inc. or-equal.
- 127. Service Line: High density polyethylene pipe and tubing, in accordance with NSF-14 and AWWA C901.
- 51. Iron Pipe Size: ASTM D2239, 3/4 inch services.
- 52. Copper Tube Size: ASTM D2737, 2 inch services.
- 53. Working Pressure: 200 pounds per square inch.
- 54. Color: Blue.
- 128. Fittings: Bronze.

2.4 COMBINATION AIR-VAC AIR RELEASE VALVE

- 129. Tap Saddle: Nylon Coated Saddle with stainless steel strap. Manufactured by Romac Industries, Inc. or-equal.
- 55. Provide full support around circumference of pipe.
- 56. Provide 2 inch minimum bearing area along pipe.
- 57. Not have lugs which will dig into pipe.
- 58. Not have U-bolt type strap.
- 130. Combination Air Release Valve:
- 59. 1" Dia. APCO 143C or-equal.
- 131. Piping: 1" dia. schedule 40 galvanized steel pipe.
- 132. Fittings: 1" dia. galvanized fittings.
- 133. Guard Post: 2" dia. x 72" schedule 40 galvanized steel pipe.
- 134. Vent Cap: Mushroom vent cap with 30 mesh screen size to match outlet piping.
- 135. Valve: 1" dia. ball valve.

2.5 ACCESSORIES

- 136. Thrust Restraint Devices: Use one of following:
- 60. Concrete Thrust Blocks: Class B or B(AE) concrete in accordance with Section 03300.
- 61. Restrained Joints:
 - 1. Pipe: Bell and spigot joint restraint harness or clamp. Rated at pressure class of pipe or greater.
 - 2. Pipe Fittings: Mechanical joint with restrained follower gland. Rated at pressure class of pipe or greater. Megalug, or-equal.
- 62. Tracer Wire: 14/1 UF direct burial wire.
 - 1. Splices: 3M Company, Cat. No. MH14 BCX heat shrink butt splice or-equal.
- 137. Bedding:
- 63. Excavated materials consisting of earth, loam, sandy clay, sand, and gravel which are free from clods of earth, rocks larger than 1.5 inch, frozen material, organic material and debris.
- 64. If excavated material is unsuitable for bedding, import bedding consisting of pitrun gravel, crushed rock, or sand, with 1.5 inch maximum size gradation.

PART 3 EXECUTION

3.1 PREPARATION

- 138. Verify location, depth, material, and size of existing water lines.

- 139. Excavate pipe trench in accordance with Section 02321. Hand trim excavation for accurate placement of pipe.
- 140. Remove large rocks or other hard matter which could damage pipe or impede installation.
- 141. Remove water from trench.

3.2 INSTALLATION - PIPE

- 142. Install pipe and fittings. Seal joints watertight. Route pipe in straight line.
- 143. Place bedding material at sides of pipe and over pipe in layers not exceeding 6 inches compacted depth. Place bedding to minimum compacted thickness of 12 inches above top of pipe.
- 144. If excavated material is unsuitable for bedding or trench bottom is unsuitable to support pipe, import granular bedding.
- 145. Compact bedding to 96 percent of maximum laboratory density. Maintain moisture content of bedding material within plus or minus 2 percent of optimum to attain required compaction density.
- 146. Install tracer wire continuous below spring line of pipe. Install tracer wire with new main lines. Wrap tracer wire around fire hydrants above ground, around coppersettlers at meters or connect to junction boxes at 1000 feet maximum intervals. Where there is existing tracer wire, connect new tracer wire to existing tracer wire. If splices are required, make watertight connection.
- 147. Place restraining devices according to manufacturers recommendations or concrete thrust blocks at any change of pipe direction and fittings. Use mechanical joint restraint devices on fittings for live tie-ins when there is not adequate time for concrete thrust blocks to cure.
- 148. Backfill trench in accordance with Section 02321.

3.3 INSTALLATION - VALVES

- 149. Set valves on solid bearing. Center and plumb valve box over valve. Set box cover flush with finished grade.

3.4 WATER PIPING PRESSURE TEST

- 150. Test water piping at pressure rating of pipe.

151. Fill pipe with water and place under slight pressure for at least 48 hours.
152. Bring pipe pressure to test pressure and maintain for 4 hours minimum.
153. Provide accurate means for measuring quantity of water needed to maintain test pressure on pipe for test period.
154. If volume of water added to pipe is 10 gallons per inch of pipe diameter per mile of pipe per 24 hours or less, pipe passes test.
155. If pipe does not pass test, find source of leakage, repair or replace, and retest. Repeat until pipe passes test.

3.5 WATER PIPING DISINFECTION

156. After completing pressure test, flush pipe to remove dirt or other foreign objects.
157. Add liquid chlorine or liquid calcium hypochlorite to pipe to obtain 50 ppm concentration of chlorine. Maintain 25 ppm chlorine residual at end of 24 hours. Disinfection procedures shall comply with Utah State Rules for Public Drinking Water Systems, Part II, and AWWA C651.
158. Flush chlorinated water from pipe. Chlorinated water discharged from pipe line shall be disposed of in acceptable manner and in conformance with rules of Utah Water Quality Board (See R317 of Administrative Code).
159. After flushing chlorinated water, take sample for bacteriological test. If necessary re-chlorinate until satisfactory bacteriological test is obtained. Do not put piping into service until test results are satisfactory.

3.6 SERVICES

160. Install new service lines and fittings as needed to connect existing services to new water lines. Install new service lines where indicated on Drawings.
161. If existing service line is in poor condition as determined by Engineer, install new service line to existing meter setter, yoke or equivalent. Install fittings as needed to make connections. Replace all galvanized steel service lines.
162. If service line is replaced, install tracer wire with new service line.

163. At locations indicated on Drawings, install new service. Locate, cut and remove existing service line as required for new service.

3.7 PROTECTION

164. Protect pipe from damage or displacement.
165. Prevent mud, silt, gravel, and other foreign materials from entering pipe and keep off joint surfaces.
166. Install plug in pipe end when pipe laying is not in progress.

END OF SECTION